



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,207	09/21/2001	Leigh Albert Sullivan	CULLLP0161US	6743
23908	7590	03/25/2005	EXAMINER	
RENNER OTTO BOISSELLE & SKLAR, LLP			CROSS, LATOYA I	
1621 EUCLID AVENUE			ART UNIT	
NINETEENTH FLOOR			PAPER NUMBER	
CLEVELAND, OH 44115			1743	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937,207

Applicant(s)

SULLIVAN ET AL.

Examiner

LaToya I. Cross

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-5,22,24-30 and 32-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-5,22,24-30 and 32-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2-3-05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 3, 2005 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 37, 40-45, 48-54 are rejected under 35 U.S.C. 102(b) as being anticipated by US patent 4,238,198 to Swaim et al.

Swaim et al teach a method and apparatus for determining total inorganic sulfur. The apparatus comprises a reaction chamber (flask 120), a means for introducing a reducing agent (contained in flask 120), a means for measuring the amount of hydrogen sulfide evolved (spectrometer), a detector (88) and tube (58) as a conduit into the detector. The means for measuring is a UV spectrometer, which also serves as a means for detecting reduction or cessation of hydrogen sulfide evolution. Swaim et al teach a source of a carrier gas (144), which is gas inlet tube. The reference teaches that the gas is an inert gas such as argon or another noble gas (col. 1, line 66 – col. 2, line 6). With respect to the heating means, Swaim et al teach

Art Unit: 1743

the flask (120) is adapted to be heated by an electrothermal agitator (col. 7, lines 60-63). With respect to the condenser, Swaim et al teach a condenser section (124) having a condenser (134) cooled by water (refrigerated fluid) circulating through a water inlet (col. 7, lines 53-56). The reference further teaches several means for controlling reagents throughout the system, including flow meter/regulator (68), peristaltic pump (114) and nebulizer (92). The reference teaches that a light signal from the detector is processed and the results of the evolution of hydrogen sulfide are recorded (col. 5, lines 29-39). The reference teaches that the inorganic sulfur content may be determined in samples of salt matrices. The reservoirs for maintaining the reagents used in the apparatus (acid, ethanol) are in the form of flasks.

4. Claims 22, 24, 26 and 32-36 are rejected under 35 U.S.C. 102(b) as being anticipated by "Chromium Reducible Sulfur" by Sullivan et al.

Sullivan et al teach the chromium reduction method for conversion of reduced inorganic sulfur to hydrogen sulfide by hot acidic chromous chloride solution. Specifically, the method involves weighing a gram of sediment sample into a digestion flask, adding chromium powder and then ethanol to the digestion flask. The flask is heated and connected to a lower condenser. The water is turned on in the condenser and hydrochloric acid is added to the glass dispenser. Nitrogen gas is allowed to purge the system for about 3 minutes. The evolved hydrogen sulfide gas is trapped in a zinc acetate solution as ZnS. See pages 9-1 – 9-3.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 1743

6. Claims 3-5, 25, 27-30, 38, 39, 46, 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swaim et al in view of "Chromium Reducible Sulfur" by Sullivan et al.

The disclosure of Swaim et al is described above.

Swaim et al differs from the instant invention in that the reference fails to teach Cr, Sn or Hg as reducing agents.

Sullivan et al teach that chromium powder (chromous chloride) may be used in measuring reduced inorganic sulfur compounds. Sullivan et al teach that in using chromium powder, the method is specific to inorganic sulfur compounds and is not affected by sulfur in organic matter or sulfates. It would have been obvious to one of ordinary skill in the art to use chromium powder in determining the presence of inorganic sulfur compounds in a sample due to its specificity for inorganic sulfurs, while being unaffected by organic sulfurs. In using chromium powder, one could ascertain the true amount of inorganic sulfurs in a sample without needing to take ancillary measures to exclude the measurement of organic sulfurs in the test results.

With respect to claim 30, Swaim et al differs from the instantly claimed invention in that, while the reference teaches a UV spectrometer as the means for measuring evolved hydrogen sulfide, there is no disclosure of the particular instruments now recited in claim 1.

Both Cooke and Breuer et al teach analyzers that may be used in detecting hydrogen sulfide. Cooke teaches that gas chromatographs are very accurate in their detection of hydrogen sulfide (col. 1, lines 40-45). Breuer et al teach detecting hydrogen sulfide using electrochemical gas analyzers having enhanced selectivity (col. 2, lines 54-58; col. 6, line 44 - col. 7, line 3). It would have been obvious to one of ordinary skill in the art to use a conventional instrument in Swaim et al to detect the evolution of hydrogen sulfide. Gas

Art Unit: 1743

chromatographs have proven to be quite accurate and electrochemical analyzers are known for their selectivity. In using either a gas chromatograph or electrochemical analyzer for detection of hydrogen sulfide in Swaim et al, accurate results and selective detection is provided.

Response to Arguments

6. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaToya I. Cross whose telephone number is 571-272-1256.

The examiner can normally be reached on Monday-Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lic


Jill Warden
Supervisory Patent Examiner
Technology Center 1700